The following is a marked version of the amended pending claims and specification with all changes shown in conventional comparison.

IN THE SPECIFICATION:

Please replace the first paragraph on page 1 with the following paragraph:

[Specification] FIELD OF THE INVENTION

The invention relates to a device to carry out measurements in a vacuum chamber, in particular to measure thin layers, with a case, exhibiting at least one measurement window, to receive a measurement system.

Please replace the fourth paragraph on Page 1 with the following paragraph:

BACKGROUND OF THE INVENTION

The state of the art includes the so-called stand alone measuring machines, which are installed at central points of the plant. Due to the high cost of these systems and the relatively high space requirement, only a few of these systems can be installed. One drawback is also the additional paths, the additional loading and unloading steps of the wafers from the transport boxes and back again. Moreover, much time is lost between the detection of a defect and the reaction, a state that can result in enormous losses as the process speed increases and the value of the individual wafers increases dramatically.

Please replace the third full paragraph on page 3 as follows:

SUMMARY OF THE INVENTION

The object of the invention is to provide a device to carry out the measurements in the vacuum. Said device ought not to exhibit either the drawbacks of the stand alone devices or the *in situ* measuring devices, but rather permit a process oriented measurement under optimal measurement conditions.

Please replace the third full paragraph on Page 11 as follows:

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWINGS

The invention shall be explained in detail with reference to the example of an ellipsometric measurement of wafer surfaces.

Please replace the fourth full paragraph on Page 12 as follows:

DETAILED DESCRIPTION OF THE INVENTION

Figure 1a depicts a wafer production system 1. It has a modular design comprising process chambers 10, a lock chamber 11 and a transfer chamber 13. Such wafer production systems are called cluster systems.

IN THE CLAIMS:

1. (Amended) A device to carry out measurements in a vacuum chamber, in particular to measure thin layers, with a case, exhibiting at least one measurement window, to receive a measurement system, [characterized by] comprising:

   - a two part case with a first part of the case [(21)], which projects into the vacuum chamber [(11, 12, 13)], and a second part of the case

- means [(28, 29)] for the sealing and moveable arrangement of the case [(20, 21)] in the wall of the vacuum chamber [(11, 12, 13)],

- an adjusting unit [(25)], engaging with the case [(20, 21)], and

- a counterpull device [(39)], engaging with the second part of the case [(20)].

2. (Amended) A device, as claimed in claim 1, [characterized in that] wherein the means [(28, 29)] for the sealing and moveable arrangement of the case [(20, 21)] comprise bellows [(28)], resting against the outside of the wall of the vacuum chamber [(11, 12, 13)].

3. (Amended) A device, as claimed in claim 1 [or 2], [characterized in that] wherein the counterpull device is a negative pressure chamber [(39)], adjacent to the second part of the case [(20)].

4. (Amended) A device, as claimed in claim 3, [characterized in that] wherein the negative pressure chamber [(39)] is connected from the viewpoint of pressure to the vacuum chamber [(11, 12, 13)].

5. (Amended) A device, as claimed in claim 3 [or 4], [characterized in that] wherein the performance of the adjusting unit [(25)] is designed according to the weight of the case [(20, 21)] and the measurement system [(34)].

6. (Amended) A device, as claimed in [any one of the] claim[s] 1 [to 5], [characterized in that] wherein the measurement system [(34)] is disposed in the second part of the case [(20)], which is separated from the viewpoint of pressure from the first part of the case [(21)].

7. (Amended) A device, as claimed in [any one of the] claim[s] 1 [to 6], [characterized in that] wherein the first part of the case [(21)] is a vacuum adapter [(21)].

8. (Amended) A device, as claimed in [any one of the] claim[s] 1 [to 7], [characterized in that] wherein the measurement system [(34)] comprises at least one light source [(30)] or light feed and at least one detector [(32)].

9. (Amended) A device, as claimed in claim 8, [characterized in that] wherein the first part of the case is designed as a vacuum adapter [(21)] and exhibits a common beam tube [(40)] for at least one incoming and at least one outgoing beam [(5)].

10. (Amended) A device, as claimed in claim 9, [characterized in that] wherein the measurement window [(45)] comprises a prism and / or a lens system [(41)].

11. (Amended) A device, as claimed in claim 9 [or 10], [characterized in that] wherein the vacuum adapter [(21)] terminates with at least one vacuum window [(42)] on the end of the beam tube [(40)] facing the measurement system [(34)].

12. (Amended) A device, as claimed in claim 11, [characterized in that] wherein a polarizer [(43)] is attached on the beam tube interior or beam tube exterior of the prism system [(41)] of the vacuum adapter [(21)].

13. (Amended) A device, as claimed in [any one of the] claim[s] 9 [to 12], [characterized in that] wherein in the beam tube [(40)] of the vacuum adapter [(21)] deflecting prisms [(44)] or mirrors [(56)] are disposed inside the vacuum adapter [(21)].

14. (Amended) A device, as claimed in [any one of the] claim[s] 1 [to 13], [characterized in that] wherein the measurement system [(34)] exhibits a measuring unit [(53)] and an adjusting unit [(52)] comprising at least one light source [(48)] and at least one position sensitive detector [(46, 47)].

15. (Amended) A device, as claimed in claim 14, [characterized in that] wherein the adjusting unit [(52)] exhibits an adjusting laser [(48)], a beam splitter [(49)] and two position sensitive detectors [(46, 47)].

16. (Amended) A device, as claimed in [any one of the] claim[s] 1 [to 15], [characterized in that] wherein it exhibits a rotating table [(54)] as the sample table.

17. (Amended) A device, as claimed in claim 16, [characterized in that] wherein the rotating table [(54)] is arranged on a linear table [(55)], whose direction of motion runs radially to the rotating table [(54)].

18. (Amended) A device, as claimed in claim 16, [characterized in that] wherein the deflecting prisms [(44)] or mirrors [(56)] are spaced in such a manner relative to the rotating table [(54)] that they can be moved linearly in the radial direction of the rotating table [(54)].

19. (Amended) A vacuum adapter for devices to carry out optical measurements in a vacuum chamber, [which exhibits] comprising: a common beam tube [(40)] for at least one incoming and one outgoing beam [(5)], which terminates on one side with at least one vacuum window [(42)] and on the other side with a prism and / or lens system [(41)] and which exhibits means [(29)] to attach to the device.

20. (Amended) A vacuum adapter, as claimed in claim 19, [characterized in that] wherein a polarizer [(43)] is attached on the beam tube interior or beam tube exterior of the prism system [(41)].

21. (Amended) A vacuum adapter, as claimed in claim 19 [or 20], [characterized in that] wherein additional deflecting prisms [(44)] are arranged in the beam tube [(40)].

IN THE ABSTRACT:

Please amend the original Abstract as follows:

ABSTRACT

To carry out measurements in the vacuum, for example for quality control in the production of semiconductors, conventional stand alone measuring machines are installed. They are very cost, space and time intensive. To enable a process oriented measurement under optimal conditions, a device with a two part case [(20, 21)] is proposed that can be moved in a vacuum chamber, whereby one part of the case [(21)] projects into the vacuum chamber and the other part of the case [(20)] is located outside the vacuum chamber. The case [(20, 21)] can receive a measurement system [(34)]. In addition, an adjusting device [(25)], engaging with the case [(20, 21)], and a counterpull device [(39)], engaging with the second part of the case [(20)], are provided.

Respectfully submitted,

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